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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Teruaki Itoh

160-393 (AMK)

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

ROSARIO, DENNIS

ART UNIT

PAPER NUMBER

2624

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,630	Applicant(s) ITO, TERUAKI	
	Examiner Dennis Rosario	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment was received on 6/13/08. Claims 1,3 and 5 are pending.

Response to Arguments

2. Applicant's arguments filed 6/13/08 have been fully considered but they are not persuasive.

Applicants state that the objects or marks to be defined by computer 144 are not the top view image and the side view image of the test tube but rather are defects in the area of interest.

The examiner respectfully disagrees since the area of interest is an image of a side view as shown in fig. 3 and top view as shown in fig. 5 of a tube 114.

Applicants state that Bonewitz does not extract an edge of each of the top view and side view images.

The examiner respectfully disagrees since Bonewitz extracts an edge corresponding to fig. 8, num. 226 from the side view image of fig. 3 that shows a camera directed towards the side of a tube and top view image of fig. 5 that shows a camera directed towards the top of the tube.

Applicants state that they disagree with the examiner that Bonewitz's 236 can be modified with a plurality of inspection methods for different types of defects.

The examiner disagrees since Bonewitz's 236 can be modified or changed to detect defects using one algorithm and changed again to detect new defects using another algorithm since 236 has different algorithms.

3. Applicant's arguments, see page 6, lines 5-7 and page 6, line 20 to page 7, line 2, filed 6/13/08, with respect to the rejection(s) of claim 1 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Chan (US Patent 5,583,337) and Schwartz et al. (US Patent 5,204,911).

Claim Rejections - 35 USC § 112

4. Claims 1, 3 and 5 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 claims comparing edges; however, the specification discloses comparing patterns on page 5, lines 2-7 that are based on edge extraction in page 4, lines 23-26 with no description of using the extracted edge.

Due to the amendment, changing pattern to edge suggests that a pattern is not an edge. Thus, the examiner requests a clarification of edge and pattern. Is an edge and pattern the same?

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonewitz et al. (US Patent 5,926,268) in view of Hooker et al. (US Patent 6,519,356 B1) further in view of Thompson (US Patent 6,571,934 B1) further in view of Chan (US Patent 5,583,337) further in view of Schwartz et al. (US Patent 5,204,911).

Regarding claim 1, Bonewitz teaches a test tube type discrimination apparatus comprising:

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a) a tube rack (fig. 1:120) which holds test tubes (fig. 1:114) arranged in a line (as shown as two consecutive tubes in fig. 1:114a), an opening of the tubes being held on top (as shown in fig. 1 as concentric circles), the tube rack being conveyed (since fig. 1:120 is a conveyor) in a direction corresponding to the line of the test tubes (so as to move the tubes);

b) a first electronic camera (fig. 6:168c) which is located above the tube rack and picks up a top view image (fig. 9B:114) of each of the test tubes held in the tube rack,

c) a second electronic camera (fig. 6:168a) which is located at a side of the tube rack and picks up a side view image (fig. 9A:114) of each of the test tubes held in the tube rack, the first and second electronic cameras simultaneously picking up the top view image and the side view image (Bonewitz does not teach the simultaneous limitation);

d) an extracting unit (fig. 8:226) which receives the top view image picked up by the first electronic camera and the side view image picked up by the second electronic camera and extracts a top view image edge (fig. 9B:114) and a side view image edge (fig. 9A:114);

e) a reference pattern memory which stores plural reference top view image edges and reference side view image edges of the test tubes of plural types; and

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f) a comparison determination unit which compares the top view image edge and the side view image edge extracted by the extracting unit and the plural reference top view image edges and the plural reference side view image edges of the test tubes stored in the reference pattern memory to determine a type of each of the test tubes held in the tube rack (limitations e) and f) are not disclosed in Bonewitz).

Bonewitz does not teach electronic cameras that simultaneously pick up the view images and a tube rack and limitations e) and f).

Hooker teaches using cameras as shown in figure 3B to simultaneously capture an image of one container.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bonewitz's fig. 6, numerals 168a-c with Hooker's cameras that simultaneously capture a single container, because Hooker's teaching of fig. 3B "minimizes system complexity" in col. 1, line 63 and permits "the inspecting of containers at high operating speeds" in col. 2, lines 60,61.

The combination of Bonewitz and Hooker still does not teach the claimed tube rack and limitations e) and f). However, Bonewitz teaches that the invention can be "applied to containers manufactured by a variety of processes" in col. 3, lines 55,56.

Thompson teaches a container as shown in fig. 5, num. 41.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bonewitz teaching of containers with Thompson's container, because Thompson's containers provide medical and scientific value.

The combination of still does not teach limitations e) and f). However, Bonewitz suggests various inspections of tube can be done with the cameras of fig. 6:186a-c.

Chan teaches inspecting tubes as shown in fig. 2 and limitations e) and f) of:

e) a reference pattern memory ("system memory" in col. 4, lines 30-32) which stores plural reference top view image edges (Chan does not teach the claimed top view) and reference side view image edges (or reference edges as shown in fig. 2 as "Href: A" that is a horizontal line A in fig. 2 that shows a side view) of the test tubes of plural types; and

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f) a comparison determination unit (fig. 8:COMPARE...REFERENCE) which compares the top view image edge (Chan does not teach the claimed top view) and the side view image edge (fig. 2:B is an edge that corresponds to an optical caliper in col. 3, lines 60 and 61 that has found the edge and labeled the edge B) extracted by the extracting unit (or "optical calipers" in col. 3, lines 60,61 find edges) and the plural reference top view image edges (Chan does not teach the top view) and the plural reference side view image edges (edge A in fig. 2 serves as a reference edge as discussed in col. 3, lines 52,53 for edge B) of the test tubes stored in the reference pattern memory to determine a type (from inspecting as Chan does) of each of the test tubes held in the tube rack (fig. 1:4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bonewitz's teaching of fig. 6:168a and b with Chan's fig. 1:1 that obtains the image of fig. 2, because Chan's teaching of fig. 2 warns "of any incipient faults developing..." in col. 1, lines 57-62.

The combination still does not teach the claimed storing of the reference top view and the comparison of the top view.

Schwartz teaches limitations e) and f) of

e) a reference pattern memory ("mem-ory" in col. 4, lines 4-6) which stores plural reference top view image edges (as shown in fig. 10(a) as two concentric circles) and reference side view image edges (as shown in fig. 1 that has "borders of the pixels" in col. 4, lines 47-49) of the test tubes of plural types; and

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f) a comparison determination unit (fig. 12:106) which compares (by finding equal addresses as discussed in col. 6, lines 30-32) the top view image edge (fig. 10(b)) and the side view image edge extracted by the extracting unit (not taught in Schwartz) and the plural reference top view image edges (the circles of fig. 10(a)) and the plural reference side view image edges (corresponding to “borders of the pixels” in col. 4, lines 47-49 of a template corresponding to fig. 1) of the test tubes stored in the reference pattern memory to determine a type (via a “Code Image” in col. 12, lines 13- 27) of each of the test tubes held in the tube rack.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bonewitz’s teaching of fig. 6:186c and corresponding images of figures 9B and 10B and fig. 8, numerals 226,28 and 232 with Schwartz’s teaching of fig.10, because Schwartz’s teaching of fig. 10 detects, measures and locates defects on a finish area as discussed in col.11, lines 63-68.

Note that limitation f) was interpreted as four comparisons to determine a type of a tube. Chen provides the first two comparisons with respect to the side view and Schwartz provides the last two comparisons with respect to a top view where each determines a type of tube. The examiner suggests determining a type of tube based on the four comparisons since a combination of Chen's two comparisons and Schwartz’s two comparisons can be combined as the basis for determining a type of tube is not clear. Schwartz appears to perform comparisons of side view and top view images with corresponding templates; however, Schwartz’s does not clearly state that the results of

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both comparisons can be combined to determine an overall type of tube based on the two comparisons.

Applicant's specification on page 4, line 23 to page 5, line 7 is understood by the examiner to perform a comparison of patterns corresponding to F1 since F1 includes opening and side pattern with standard patterns E1 to determine a type of tube.

The examiner suggests amending claim 1 to corresponding to comparing patterns **(emphasis added)** with patterns **(emphasis added)** to determine a type of tube. Since the cited art, Schwartz, compares one pattern with another pattern to determine a type of tube; then, has another teaching of comparing one pattern with another pattern to determine a type of tube. And does not clearly state comparing two patterns with another two patterns to determine a type of tube.

Regarding claim 3, Bonewitz of the combination teaches the test tube type discrimination apparatus according to claim 1, wherein the first and second electronic cameras each employ a CCD ("CCD" in col. 5, line 14) as an image pickup device.

Regarding claim 5, Bonewitz of the combination teaches the test tube type discrimination apparatus according to claim 1, further comprising:
a sorting unit (fig. 1,num. 136) which sorts the test tubes whose images are picked up, according to a type based on determination results of the comparison unit.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Rosario/
Examiner, Art Unit 2624

/Matthew C Bella/
Supervisory Patent Examiner, Art
Unit 2624